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Abstract

There has been recent UK media attention on the global impact of the cocaine trade and the morality of personal use of cocaine powder. In this study we investigated whether people who use cocaine engage in moral disengagement (MD) strategies to reduce anticipated guilt associated with use. Participants read text describing the impact of the global cocaine market on others and completed a range of measures including assessments of substance use, MD, anticipated guilt, internalised moral identity, and empathy. We hypothesised that cocaine-related MD would positively predict cocaine use, and this would be partly mediated by anticipated guilt. Complete data were obtained from 254 participants through an anonymous cross-sectional survey (59.8% Female; mean age 30.8 ± 12.6 years). Our hypotheses were supported; i) MD predicted cocaine use positively and anticipated guilt negatively; ii) anticipated guilt negatively predicted cocaine use; anticipated guilt partially mediated the relationship between MD and cocaine use. People who use powder cocaine may use MD to reduce the anticipated guilt associated with knowledge of the harms associated with the drugs trade. Campaigns that focus on the morality of cocaine use or ethical choices may therefore have limited impact unless MD is challenged as part of these campaigns.

Keywords: cocaine; prevention; media; education; drug policy; moral disengagement

Introduction

Globally, approximately 19 million people use cocaine annually, and the production, purity, and seizures have increased in recent years (UNODC, 2020). The size of the European market is estimated to have an annual value of €8 billion (EMCDDA & Europol, 2019). In England and Wales, cocaine powder is the second most popular controlled drug after cannabis, and 2.6% of the adult population (aged 16-59) report use in the previous year (2019/20), with the highest prevalence of use in the 16-24 year old age group (5.3%; ONS, 2020). Prevalence in Scotland and Northern Ireland is similar (UK Focal Point on Drugs, 2021). Cocaine is associated with significant primary harms. In 2019 there were 708 cocaine-related deaths in England and Wales (a 186% increase since 2014), 4341 hospital admissions due to cocaine poisonings (a 75% increase since 2014), and 20,084 new power cocaine drug treatment entries (a 30% increase since 2013/14; NHS Digital, 2020) .

Cocaine is a global commodity (EMCDDA, 2018). The coca plant is primarily grown in countries such as Columbia, Peru, and Bolivia, where it is cultivated, processed into cocaine, and pressed into blocks ready for export. It is mainly trafficked into Southern Europe using maritime transport via transit countries in West Africa, Central America, or the Caribbean (EMCDDA, 2018). From Southern Europe it is then usually imported into the UK through Belgium and the Netherlands, although there is some direct importation, and recent diversification of transportation routes and practices. Some cocaine is prepared as crack cocaine once it reaches the UK, although most is consumed as powder (Black, 2020). The UK cocaine importation and wholesale market is controlled by a small number of organised crime groups, but the domestic distribution and local retail of powder and crack cocaine is generally distinct, as the profile of consumer groups and organised crime groups involved are different (Black, 2020).

Whilst domestic UK drug market violence related to cocaine powder is lower relative to crack cocaine (and other drugs such as heroin), the international market is lucrative, and so is characterised by a high level of societal harm, including violence; human rights violations; stalling of economic development goals; environmental damage from drug production and crop eradication; militarisation of criminal markets and law enforcement responses; and state corruption (e.g. Aziani (2020); Burns-Edel (2016); Gutiérrez-Sanín (2021); Keefer et al. (2008); Salisbury and Fagan (2013); UNODC (2006, 2010); Werb et al. (2011)). Whilst there is little evidence to suggest that international drug control has been effective in disrupting the global supply of cocaine, paradoxically, prohibition, enforcement, and other policy actions may have promoted harm as both the risks of market participation and financial rewards have increased (Werb et al., 2011).

Few interventions have been developed, or subsequently evaluated, that aim to prevent use or cessation of powder cocaine use in non-treatment settings, and reviews suggest that those that have been implemented have not been effective (e.g. Allara et al. (2015); Champion et al. (2013); Dennhardt and Murphy (2013); Faggiano, Minozzi, et al. (2014); Hickman et al. (2014); Newton et al. (2017)). This may partly be due to factors such as the relatively low prevalence of cocaine use compared to cannabis and alcohol in adolescents, typically the primary target group of prevention actions; historically low policy priority compared to crack cocaine or other drugs; or the lack of relevant behaviour change theory on which to base interventions (Faggiano, Allara, et al., 2014; H.M.Government, 2017; ONS, 2020). However, in response to evidence of increasing use and harm in the UK (ACMD, 2015), and law enforcement attention towards inner-city violence and exploitative supply models (termed ‘county lines’ in the UK; HM Government, 2018; National Crime Agency, 2018), there has been recent policy focus on cocaine powder. Led by senior politicians, police leaders, and some sections of the popular media, discourse has situated responsibility for the violence associated

with the powder cocaine market with complicit affluent consumers (Spicer, 2021). Cocaine use has been framed as an immoral activity that causes harm to others (e.g. “Middle-class drug users ‘have blood on their hands’”; Simpson, 2019), at odds with privileged settings of use (e.g. ‘middle class dinner parties’, Bloom, 2018) and other ethical consumer choices (e.g. fair trade coffee, Foges, 2018). Representations in broadcast media have also highlighted the links between purchasing behaviour of consumers, and the harms associated with international production and trafficking of cocaine, and policy responses (e.g., ‘Cocaine Capital of the World’, BBC UK, 2018; ‘Doing Drugs for Fun’, Channel 5 UK, 2019).

Discussions about the morality of controlled drug use have frequently led to the scapegoating of the people who use them, particularly in attempts to individualise blame, including explanations given for causes of drug-related problems, and the production of harms to others (Stevens, 2018; Yang et al., 2007). The recent attention paid to powder cocaine in the UK is notable as whilst acting to silence other potential explanations for harm (e.g. drug control policies, social inequalities), scapegoating has targeted affluent cocaine consumers rather than the usual targets of marginalised and socially excluded people (Wincup & Monaghan, 2016; Wincup & Stevens, 2021). However, whilst the population profile for use of powder cocaine in the UK suggests financial prosperity (income, housing status, and consumer classification group); use is distributed across social classifications (e.g. ACORN and output area classifications; [ONS, 2020](#)). Furthermore, whilst the global harms associated with cocaine are relevant to understanding the wider impacts of use in the UK, popular and political discussion has largely mischaracterised domestic powder cocaine markets, conflating them with those of crack and heroin (Black, 2020; Coomber & Moyle, 2017). A government funded mass media prevention campaign is planned (Dathan, 2021), and despite the general ineffectiveness of mass media approaches to drug prevention (Allara et al., 2015), the objective is to discourage use

through development of negative injunctive norms against powder cocaine use by highlighting the relationship between individual purchase behaviours and the harms of the cocaine trade.

With respect to behaviour change taxonomy, such prevention campaigns aim to provide information about the broader consequences of cocaine use (Michie et al., 2013). By stimulating negative self-sanctions (e.g., anticipated guilt) and social disapproval of the behaviour (i.e. negative social norms and ‘immorality’ of powder cocaine purchase and/or use), these types of actions aim to change behaviour through normative pressure and persuasion, and have a deterrent effect by increasing anticipated negative emotional consequences of participation, such as guilt and regret (Bandura, 1991). However, individuals may circumvent such self-regulatory processes through conditional endorsement of valued behaviour via psychosocial mechanisms collectively termed moral disengagement (MD) (Bandura, 1991; Bandura et al., 2001). Moral disengagement processes (i.e., *moral justification, euphemistic labelling, advantageous comparison, diffusion of responsibility, displacement of responsibility, distortion of consequences, dehumanization, and attribution of blame*) allow individuals to violate social, legal, and ethical norms with emotional impunity by justifying, rationalising, and/or absolving personal responsibility for transgressive behaviour.

Increased MD has been associated with a range of relevant behaviours, including ethical consumer choices, greater propensity of (adolescent) alcohol and other drug use; sports doping; use of cognitive enhancers in educational settings; criminal behaviour, and violent offending (Boardley et al., 2017; Chowdhury & Fernando, 2014; Graça et al., 2014; Heyes & Boardley, 2019; Ishoy, 2017; Jang, 2019; Newton, Barrett, et al., 2014; Passini, 2012; Quinn & Bussey, 2015a, 2015b; Wojciechowski, 2021). For example, Boardley and colleagues (2017) found that MD in relation to sports and gym doping negatively predicted anticipated guilt, and positively predicted reported doping. Morality-based drug prevention campaigns may therefore fail if

target audiences employ MD strategies to assuage the negative emotions that campaigns are designed to evoke, to facilitate their behavioural choices.

In this study, we explored the relationship between powder cocaine use and MD after exposure to a description of the negative impact of the cocaine trade on others. In keeping with the findings of research described above, and in particular Boardley and colleague's (2017) study of doping, we predicted that there would be a positive relationship between cocaine moral disengagement (CMD) and reported cocaine use. We hypothesised that higher CMD would positively predict cocaine use through a direct pathway, and indirectly through anticipated guilt, whereby increased CMD would predict lower anticipated guilt, which in turn would predict greater cocaine use. We included a general measure of propensity to disengage from moral self-sanctions of negative behaviour, to provide a context-free assessment of MD (Moore et al., 2012). As empathy is associated with increased anticipation and experience of the impact of individual behaviour on others (Davis, 1983; Jolliffe & Farrington, 2006), we predicted that increased empathy would be negatively associated with CMD and positively associated with anticipated guilt. Finally, moral identity (Aquino et al., 2009), the extent to which participants' self-concept incorporates the importance of being a moral person and which bridges moral considerations, judgments, principles and ideals with ethical decision making and behaviour, has been previously found to be negatively associated with immoral or unethical behaviour (Hertz & Krettenauer, 2016). As MD is thought to account for the relationship between moral identity and immoral behaviour (Detert et al., 2008), we hypothesised that there would be a negative relationship between moral identity and CMD, and CMD would mediate a negative relationship between moral identity and cocaine use via anticipated guilt.

Methods

Design

Online cross-sectional survey, and participants completed an anonymous online questionnaire.

Participants

A convenience sample was recruited from the UK general public, including University students. Inclusion criteria were people who were UK residents and aged over 18 years. Participants were recruited through advertisements on social media, an internal University research participant database targeting psychology students, an online drugs discussion forum (*Bluelight*; bluelight.org), and snowball sampling. To reduce bias, recruitment materials specified that the study was investigating attitudes towards the cocaine trade, but did not mention morality or prevention campaigns. The main study objectives were described in the debrief.

Overall, 336 survey attempts were recorded, but only those participants providing complete data on CMD, anticipated guilt, and cocaine use were retained. The majority of discarded datasets were due to participants ending the survey after providing consent, but before the first survey materials were completed. The final sample comprised 254 participants (75.6% of attempts; $n = 152$ (59.8%) female; mean age 30.8 ± 12.6 years); 97 (38.2%) were in full time employment and 103 (40.6%) were studying full time.

Materials and Procedure

Participants completed a single online questionnaire hosted on the Qualtrics platform (Qualtrics, Provo, UT, USA), and this took approximately 15 minutes to complete.

After reading the study information and providing consent, participants completed two screening questions (UK resident; aged > 18 years) before proceeding. Participants completed

questions on demographics (age, gender, education, ethnicity, employment); substance use history (coded as binary yes/no responses to questions on lifetime and last year use of several substances, including cocaine); and voting preference to assess political orientation (main UK political parties; recoded into *left*, *right*, *centre* parties for analysis).

To assess CMD, participants were first asked to read the text below, which was developed from a number of sources (Home Office, 2020; EMCDDA, 2018; UNODC, 2020), and contained themes common to recent UK media discussions of the global impact of the cocaine trade, and morality of use (e.g. Pollard, 2020). We focused on global impact as we intended to follow-up this study by examining responses to popular accounts of specific domestic cocaine harms (e.g. exploitation, and knife crime), and anticipated different understanding, awareness, and salience of these (e.g. harms to populations in other countries vs those in participants' own geography).

Cocaine is a global commodity. It is produced from the coca plant which is primarily grown in producer countries such as Columbia, Peru, and Bolivia, where it is cultivated, processed into cocaine, and pressed into blocks ready for export. It reaches the UK through different routes, but is mainly trafficked into Southern Europe by sea via transit countries in Africa, Central America, or the Caribbean. From Southern Europe it is then usually trafficked into the UK through Belgium and the Netherlands, although there is some direct importation directly into the UK. Some cocaine is then 'cooked' into crack cocaine once it reaches the UK, although most is consumed as powder.

Powder cocaine is the second most popular drug in the UK after cannabis. Surveys suggest that around 1 in 10 UK adults have ever used it, and it is easily available to those who want it. The size of the European cocaine market is estimated to be £8billion annually (and growing), and the drug has never been purer or more affordable. Most of the profits from the cocaine trade benefit organised crime groups in South America and Europe, but most of the people who

grow and process coca plants, or are caught and punished for transporting cocaine, live in poverty.

It is difficult to accurately estimate the negative impact of the illicit cocaine trade and government responses on producer and transit countries, but it has been linked with tens of thousands of murders and other forms of violence; human rights violations; imprisonment; stalling of economic development; and environmental damage. These mostly affect the lives of ordinary people in other countries.

Investigations have found that the cocaine trade leads to corruption at all levels of society, and undermines safe society - from law enforcement officers on the ground, right up to national government in some countries. Cocaine production is also associated with environmental damage such as deforestation, soil erosion, and the use of fertilisers and other chemicals that pollute waterways. The aerial spraying of herbicides by governments trying to eradicate coca plantations also poses big threats to the environment.

After indicating that they had read and understood the text, participants completed eight items based on Bandura's mechanisms of MD (Bandura et al., 1996), which were adapted from the short form of the doping MD scale (Boardley et al., 2018). Items were piloted with colleagues ($n=20$) to ensure correspondence with the underlying mechanism. Each item was scored on a seven-point Likert scale (1 *strongly disagree* to 7 *strongly agree*), with higher total scores representing greater CMD.

- i. People using powder cocaine is OK because it provides income for people living in poverty (*moral justification*);
- ii. Using powder cocaine is just another way to have a good time (*euphemistic labelling*);

- iii. Compared to other illegal things people do in everyday life, someone using powder cocaine now and again to have a good time is not very serious (*advantageous comparison*);
- iv. People who use powder cocaine in the UK shouldn't be blamed for the harms caused by its production, supply, and trade (*displacement of responsibility*);
- v. Powder cocaine users only play a small part in the harm caused by the cocaine trade as so many other people (e.g. criminals, police and politicians) should share responsibility (*diffusion of responsibility*);
- vi. Powder cocaine use does not really hurt anyone apart from those that use it (*distortion of consequences*);
- vii. People in the cocaine trade who come to harm only have themselves to blame as it is illegal and risky (*attribution of blame*);
- viii. People in other countries who are involved in the cocaine trade are probably treated roughly because they lack feelings that can be hurt (*dehumanisation*).

In this study, Cronbach's $\alpha = 0.75$, indicating acceptable reliability, although there were negative correlations between *attribution of blame* and *dehumanisation* with other scale items.

To assess participants' anticipated guilt in response to cocaine use, they were asked to read the following text, which was based on a similar prompt in Boardley and colleagues' (2017) study of sports doping:

Please imagine being in the following situation:

You have a job that means you work long hours and you have little time for other activities during the week. When you get home, you usually just want to relax and unwind, and you often feel too tired to go out. You look forward to the weekend - you can finally meet up with your friends, go out and have a good time. Occasionally you used to drink too much on special

occasions, but you don't usually drink to excess. Recently, on the advice of a friend you tried cocaine as an alternative and it made you feel good, helping you to keep going and socialise. Although you felt a bit tired on the Monday morning, it was no different to how you would feel if you'd been drinking. You found the cocaine was fairly easy to get hold of so you are planning to do this once every couple of months or so.

After confirming that they had read and understood the text, participants completed the five items of the guilt scale of the State Shame and Guilt Scale (SSG; Marschall et al., 1994) , responding on a five-point Likert scale (1 *not at all* to 5 *extremely*), with higher total scores representing higher total anticipated guilt.

To assess general propensity to morally disengage (PMD), participants completed eight items of the Propensity to Morally Disengage Scale (Moore et al., 2012). This is scored on a 7-point Likert scale range (1 *strongly disagree* to 7 *strongly agree*) with higher scores representing greater general propensity to morally disengage.

We assessed participants' spontaneous propensity to take into account the perspective and concerns of others using the 14-item empathic perspective taking (EMP) scale of the Interpersonal Reactivity Index (Davis, 1983). This is scored on a five-point Likert scale (0 *does not describe me well* to 4 *describes me very well*), with higher total scores representing greater empathic perspective taking.

We used the Internalised Moral Identity (IMID) scale to assess moral identity (Aquino & Reed, 2002). The scale consists of seven items scored on a five-point Likert scale (1 *strongly disagree* to 5 *strongly agree*). This measure has been found to demonstrate a strong relationship with prosocial and ethical behaviour (e.g. Kavussano & Ring, 2017; Kavussano et al., 2015). Higher scores represent participants with a moral identity that is more concerned about the impact of personal behaviour on harm to others.

These measures were presented to participants in a random order to help control for order effects.

We also assessed participants' support for a global legally-regulated cocaine market, and whether they had seen media reports in the last 12 months about people who use powder cocaine (both items scored *yes*; *no*; *don't know*). If they had seen media reports, then they were asked to indicate whether these were generally positive, negative, or balanced. Participants were also asked to indicate if i) they; or ii) a family member/close friend, had ever received drug treatment (scored *yes*; *no*). Finally, they self-rated their knowledge of the international production and trafficking of cocaine, and their knowledge of the nature of the UK cocaine powder market (both rated on a 10-point scale, where a score of 10 represented highest level of self-rated knowledge).

The research was approved by Liverpool John Moores University Research Ethics Committee.

Analysis

Our analyses were not pre-registered, therefore findings should be considered exploratory.

Primary analyses

Preliminary data screening was conducted to check for patterns of missing data, and missing data (2.1%) was judged to be at random. Missing data for latent variable items (with the exception of CMD, SSG, and cocaine use) were imputed using the expectation maximization algorithm.

We used structural equation modelling (SEM) to test the hypothesised model (Figure 1). In accordance with the approach taken by Boardley and colleagues (2017) in their study of sports doping and MD, a two-step approach was taken. In the first step, measurement models were tested which assessed the relationships between observed variables and their latent constructs.

As preliminary checks showed that data deviated from multivariate normality, the robust Maximum Likelihood estimation was used for all analyses, as this provides more accurate standard errors, chi-squared values, and fit indices for data that are non-normally distributed (Brosseau-Liard & Savalei, 2014). This was implemented in Stata (v16) by first requesting the Satorra-Bentler RMSEA, CFI, and TLI, and then applying the robust corrections using syntax developed by Langer (2019). Inspection of those cases with the largest contribution to normalised multivariate kurtosis suggested minimal impact of outliers, and so no cases were deleted. The final measurement model was determined through inspection of factor loadings and modification indices during confirmatory factor analysis (Kline, 2015). In the second step, a model incorporating the hypothesised structural pathways was tested.

Exploratory analyses

We undertook an exploratory logistic regression with use of cocaine in the previous 12 months as the dependent variable. Demographics and political orientation were entered into block 1; IMID, EMP, and PMD scale scores were entered into block 2; mean CMD, and SSG were entered into block 3; and self-rated knowledge about the international and UK cocaine markets, support for a regulated cocaine market, and exposure to cocaine in the media in the previous 12 months were entered into block 4. We included political orientation in the analysis based on previous research showing relationships between political orientation and moral and ethical decision-making, and a range of substance use behaviours and attitudes (e.g. Fisher and Sweeney, 1998; Grünhage & Reuter, 2020; Stevens, 2019; YouGov, 2019).

Hing et al., 2007

Alpha was set at .05 for all analyses. SEM was undertaken using Stata v16 (StataCorp, 2019) and other analyses with SPSS V27 (IBM Corp, 2020).

Results

Around one fifth (20.9%; $n = 53$) of participants reported a lifetime use of cocaine, and 20.5% ($n = 52$) reported use in the previous 12 months. Ninety-seven (38.2%) participants reported being in full time employment, and 103 (40.6%) were in full time education. Descriptive statistics and bivariate correlations for main study variables are shown in Table 1.

The model specified included six items of the CMD (attribution of blame and dehumanisation were removed due to poor fit), six items of the IMID (the item *I would be ashamed to be a person who has these characteristics* was removed due to poor fit), 11 items of the EMP, all five items of the SSG (Figure 1). However, inclusion of the PMD led to poor model fit, and so this scale was excluded from the final measurement model. This resulted in acceptable model fit $X^2(363) = 563.050$, $p < 0.05$; R-RMSEA = 0.0459; R-CFI = 0.9501; R-TLI = 0.9498; SRMSR = 0.052. In the second step, the structural model was inspected. Specification of the structural model resulted in acceptable model fit (Schermelleh-Engel et al., 2003) ($X^2(366) = 547.811$, $p = 0.000$; R-RMSEA = 0.0469; RCFI = 0.9553; RTLI = 0.9488; SRMSR = 0.054). Overall, the model accounted for 5.2% of the variance in cocaine MD, 58.3% of the variance in anticipated guilt, and 33.5% of the variance in cocaine use.

As shown by the standardised coefficients in the structural model (Figure 1), IMID had a moderate negative predictive effect on CMD; and empathy had weak positive but non-significant effects on CMD and SSG. There was a strong negative predictive effect of CMD on SSG, a moderate positive effect of CMD on cocaine use; and a moderate negative predictive effect of SSG on cocaine use (Acock, 2016, p. 356).

We determined indirect, direct, and total effects of model pathways to understand the extent to which predictive effects operated via mediational pathways (standardized coefficients reported; Zhao et al., 2010):

- i) For the effect of IMID on SSG via CMD, the total, direct, and indirect effects were .23 ($p < 0.01$); 0.00 ($p > 0.05$); and .23 ($p < 0.01$) respectively. The percentage of the total effect mediated by CMD was 100%;
- ii) For the effect of EMP on SSG via CMD, the total, direct, and indirect effects were -.01 ($p = .935$); .12 ($p < 0.05$); and -.12 ($p = .132$) respectively. No mediation occurred;
- iii) For the effect of CMD on cocaine use via SSG, the total, direct, and indirect effects were .54 ($p < .001$); .31 ($p < .001$); and .23 ($p < .05$) respectively. The percentage of the total effect mediated by SSG was 43%
- iv) For the effect of IMID on cocaine use via CMD and SSG, the total, direct, and indirect effects were -.17 ($p < .01$); .00 ($p > .05$); and -.17 ($p < .01$) respectively. The percentage of the total effect mediated by CMD and SSG was 100%
- v) For the effect of EMP on cocaine use via CMD and SSG, the total, direct, and indirect effects were .05 ($p = .379$); .00 ($p > .05$); and .05 ($p = .379$) respectively. No mediation occurred.

Final model parameters for the regression analysis predicting cocaine use are presented in Table 2. Higher CMD ($\beta = 1.78$, $p < .05$), and lower SSG ($\beta = .86$, $p < .01$) were the only significant predictors of use.

Discussion

In this exploratory study we investigated the predictive relationship between CMD, anticipated guilt and cocaine use after presentation of written information relating to the secondary harms of the cocaine trade. Our main study hypotheses were supported, and in summary, greater levels of CMD were associated with increased likelihood of cocaine use in the previous 12 months. We found that whilst controlling for empathic perspective taking towards others and internalised moral identity, there was a significant positive relationship between CMD and cocaine use, and this was partly mediated by anticipated guilt. CMD directly and positively predicted cocaine use; CMD negatively predicted anticipated guilt; and anticipated guilt negatively predicted cocaine use. We were unable to assess the effect of general propensity to MD because of poor model fit, hence it was not possible to determine whether this was a CMD specific effect, or reflected MD more generally. Other hypotheses were partially supported, and whilst empathy did not predict CMD or anticipated guilt; internalised moral identity was negatively associated with CMD, and its relationship with cocaine use was mediated by CMD and anticipated guilt.

A significant contribution of the present study was that it extended the relevance of key elements of Bandura's (1991) social cognitive theory of moral thought and action to a further drug use context. Model testing provided support for a potential role of MD in the facilitation of powder cocaine use, in part mediated through a negative effect of CMD on anticipated guilt. More specifically, it may be that people who justify and rationalise powder cocaine use through CMD are more likely to go on to use this substance, and that reduced anticipation of guilt for doing so is a likely mechanism explaining this effect. However, this would need to be assessed through prospective research as we included a historical measure of cocaine use that was presented at the same time as our assessments of CMD and SSG. Previously, these aspects of Bandura's (1991) theory have also been supported in research on doping in sport, and image

and performance enhancing drug use in fitness contexts (Boardley et al., 2017; Hodge et al., 2013; Lucidi et al., 2004; Lucidi et al., 2008). Further, recent research demonstrated a moral intervention reduced athletes' MD, increased their anticipated guilt, and reduced their doping likelihood from pre- to post-intervention and at six-month follow-up (see below; Kavussanu et al., 2021). The present study suggests Bandura's (1991) theory may have relevance in a wider range of substance-use contexts than previously thought (i.e. beyond doping), and as such it may be worth examining whether similar interventions designed to highlight MD strategies could be developed to reduce other harmful forms of substance use.

One unexpected finding was the poor model fit when CMD items representing the MD mechanisms of dehumanisation and attribution of blame were included in the model. Although not anticipated, this may be explained through past research that has found a lack of relevance of these mechanisms when examining MD with respect to drug use in physical activity contexts (Boardley & Grix, 2014; Boardley et al., 2014; Boardley et al., 2015). Specifically, across these three qualitative studies conducted with 85 participants who admitted to previous use of prohibited performance enhancing drugs (e.g., androgenic anabolic steroids, erythropoietin), only one instance of either of these mechanisms was detected. To try to explain this, Boardley and colleagues highlighted what is unique about these two mechanisms is that they specifically target the victim/s of transgressive acts (see Bandura, 1991), and as such they may not be relevant due to the lack of a direct external victim of performance enhancing drug use. Based upon our present findings regarding these mechanisms, it may be the case that any external victims of powder cocaine use (e.g., people in the cocaine trade) are too indirect to require the use of these two mechanisms to rationalise the behaviour. Future qualitative research with people who use powder cocaine in the UK could help test this proposition and elucidate this finding further.

With respect to current UK discussions about the impact of cocaine use on others and the development of persuasive prevention campaigns delivered through mass media, our findings suggest that target groups using cocaine may adopt MD mechanisms to prevent anticipated guilt when exposed to information concerning the potential harms associated with use. Moral disengagement allows an individual to reconstrue behaviour so that it is not deemed as immoral in particular situations, despite knowledge of the harm that it may cause to others (Bandura, 1991). These strategies are conditional, may be selectively applied to some moral violations and not others depending upon the value placed on the outcomes, and can occur in individuals who may otherwise possess a strong moral identity (Bandura et al., 1996). Whilst MD is seen as a self-regulatory process that makes it easier to engage in harmful behaviour, it is also used as a coping mechanism that allows individuals to justify their decision and better deal with negative emotions resulting from awareness of the consequences of that action, thus making repeat activity more likely (Tillman et al., 2018).

In keeping with other work on unethical decision making (Detert et al., 2008), findings from our sample suggested higher internalised moral identity was associated with lower CMD, but after controlling for empathic perspective taking and internalised moral identity we still found evidence of a relationship between CMD and cocaine use. Although not assessed in this study, but of relevance to our findings, moral licensing processes may be important, whereby previous actions establish a baseline of positive moral self-image or ethical behaviour (Blanken et al., 2015). As part of self-regulatory activity, an individual may accrue moral ‘credits’ for performing ‘good’ deeds, which can subsequently offset harmful actions, such as cocaine use, even when the individual recognises them as harmful (Merritt et al., 2010). Similarly, by establishing that they already possess moral credentials through previous activity, other behaviour that is inconsistent with this can be attributed to external factors (Brown et al., 2011). For example, in people who use cocaine, self-identity established through ethical behavioural

and consumer choices, especially when recognised by others (Rege & Telle, 2004), may not be subsequently challenged by information about unethical substance use. Examining the mechanisms of CMD retained in the structural model, participants reporting cocaine use reduced personal responsibility for harms by diffusing and displacing accountability across multiple responsible (external) parties, but perceived their own use as a harmless and fun activity, that made little contribution to the overall burden of the cocaine trade. This reasoning is also broadly in line with some media and academic interpretations of the harms of UK cocaine markets, which have sought to minimise individual consumer's responsibility, pointing instead to the external policy conditions which make the trade so financially lucrative and violent (Daly & Fleetwood, 2016; Spicer, 2021).

These underlying processes may reduce the potential effectiveness of cocaine prevention strategies, and our findings suggest that campaign developers would need to carefully consider the content and framing of activities. In addition to concerns about mischaracterisation of UK cocaine markets (see Introduction), knowledge and exposure to information about the secondary harms of substance use behaviour, attribution of individual blame, and framing cocaine use as an immoral or unethical choice may be insufficient to promote behaviour change. There have been few evaluations of prevention campaigns that have specifically targeted MD in the context of substance use, although this has been suggested as a potential programme component (e.g. Heyes and Boardley, 2019); Newton, Barrett, et al., 2014; Quinn and Bussey, 2015a); but see Bustamante and Chaux, 2014 for an example of a general school-based moral behaviour approach). One intervention targeting doping in Greek and UK athletes in late adolescence included activities targeting MD, moral identity, and moral atmosphere (i.e. group social norms; Kavussanu et al., 2021). The MD components presented stories of athletes who doped and used MD-based justifications for their actions. Participants were asked to challenge these justifications, and highlight the consequences of doping on others (*distortion*

of consequences). Overall, doping intentions were significantly reduced at post-intervention (+3 months) compared to a knowledge-based intervention, but subgroup analyses suggested this was only evident in the Greek athletes, and not the UK participants for whom the educational intervention was effective. Whilst there was a significant reduction in MD at +6 months, no mediation analysis was undertaken, and as these outcomes were similar in both countries and in both intervention arms, it is uncertain whether MD activities were an active component in this intervention. Another online prevention programme for adolescents (Climate Schools) reduced cannabis and alcohol use, and was associated with a decrease in general MD, but again, no assessment was made as to whether this mediated change in substance use behaviour (Newton, Andrews, et al., 2014).

It is therefore uncertain how CMD could therefore be effectively targeted. Approaches in other fields (e.g. prevention of violent extremism, reducing support for collective violence) that have incorporated a MD framework approach have included components that reframe targeted behaviour as morally unjust; seek to increase empathy and (re)humanise victims; include persuasive communications that explain the process of MD in order to increase resistance to the strategy; and present moral dilemma stories that provide opportunities for reflection and social comparison (e.g. Aly et al. (2014); Gielen (2019); McAlister (2001); Sjøen and Jore (2019); Stephens et al. (2021)). It may be difficult to include these types of structured activities in a media campaign, but persuasive communications utilising a combination of different communicators, message formats, lengths, and platforms (e.g. video, written, audio), with multiple audience exposures can be effective (e.g. Harrington et al., 2015). Rather than direct personal confrontation of substance use behaviour, which may induce psychological reactance (Reynolds-Tylus, 2019; Rosenberg & Siegel, 2018; Steindl et al., 2015), persuasive messages could include content that targets ambivalent attitudes towards cocaine use, prior to delivery of the main preventative message (Crano et al., 2017; Crano et al., 2019). Considering the role of

reputation, credentials and identity in moral and ethical behaviour (Blanken et al., 2015; Rotella & Barclay, 2020), campaigns could also seek to influence relevant injunctive norms about harmful substance use in peer reference groups (Miller & Prentice, 2016; Yamin et al., 2019). However, as experimental research suggests that individuals who experience shame after learning about the consequences of behaviour are more likely to morally disengage (Tillman et al., 2018), it would be important to do this without scapegoating or generating stigma. Persuasion appeals promoting alternative and more ethical consumer choices may have potential (Foges, 2018; Graça et al., 2014), but in the absence of an ethical and legally regulated cocaine market, access is currently only possible through criminal networks.

This was an exploratory study and so has a number of limitations that need to be considered. We used a convenience sample, with an overrepresentation of full-time university students. Around 1 in 5 reported a lifetime use of cocaine, which is higher than the general population prevalence of 10.5% in the UK (ONS, 2020), suggesting a self-selection bias and possible oversampling of people who have a particular interest in drug-related research topics. Hence our findings may not be generalisable to the general population. Furthermore, unlike the national focus on cocaine use in affluent professionals which prompted our study, only 38% of our sample were in full time employment. However, segmentation of target populations in universal mass media campaigns is difficult (Allara et al., 2015), and the current university students in our sample are on career trajectories to become the professionals referenced in national discussions on cocaine (Universities UK, 2007). We only included a relatively simple measure of historic cocaine use, and so follow-up studies should include more detailed measures so that we are able to assess differences in responses based on indicators such as patterns of use, and cocaine use disorders. As this was a cross-sectional study, we do not presume causation, and only assessed historical cocaine use, so would also be important to undertake longitudinal work to investigate whether CMD predicts future cocaine use or if the

inverse is true. Finally, this was not an experimental design or evaluation of prevention content, and whilst we based our written stimulus prompt on information and framing typically included in recent popular media articles about cocaine, we only presented a single stimulus. Although we assessed recent exposure to media reports on cocaine in our exploratory analysis, it would have been useful to have been able to present real world or simulated multi-media examples. Target groups in the general population may encounter repeated reinforcing or counteracting perspectives in their usual media activities, and prevention activities could include multiple structured components. We intend to examine some of these aspects in follow up studies.

Conclusion

People who use powder cocaine may use MD to reduce negative emotions associated with knowledge of the harms associated with the drugs trade. The effects of persuasion-based prevention campaigns that focus on the ethics or moral aspects of cocaine use, particularly in relation to harms to others, may therefore have limited impact. Resistance to MD could be strengthened by developing individual awareness of the processes that people use to justify behaviour that contravenes social norms or that contrasts with moral self-identity. Further research is needed to investigate whether MD predicts future cocaine use, and which (if any) representations of the harms of cocaine could influence behaviour.

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